Listing of Claims

1. (currently amended) A method of controlling engagement of a clutch which carries torque before, during and after a shifting event in a transmission which is connected to an engine, the method comprising:

providing a feed-forward input command which increases as the engine torque increases, and decreases as the engine torque decreases;

providing a feedback input command which is a function of [[the]] an error value equaling a calculated difference between a measured clutch slip and a reference slip profile; and

summing said feed-forward input command and said feedback input command to provide a clutch control command for controlling engagement of the clutch before, during and after the shifting event to allow a desired amount of clutch slip to damp excitation of the transmission.

2. (currently amended) The method of claim 1, wherein said reference slip profile includes: a ~~normal~~ driving portion in which a first low slip amount is maintained; a pre-shift portion in which slip is increased from said first low slip amount to a medium slip amount when approaching a vehicle shift speed; a during-shift portion in which slip increases from said medium slip amount to a peak slip amount and then decreases to a second low slip amount; and a post-shift portion in which [[a]] said second low slip amount is maintained.

3. (original) The method of claim 2, wherein said clutch is a range clutch positioned inside the transmission.

4. (original) The method of claim 2, wherein said clutch is an input clutch positioned between the transmission and the engine.

5. (original) The method of claim 2, wherein said clutch is a torque converter clutch positioned between the transmission and the engine.

6. (original) The method of claim 2, wherein said clutch control command controls hydraulic pressure applied within the clutch.

7. (original) The method of claim 6, wherein said hydraulic pressure remains substantially constant in said during-shift portion of the shift profile, and inertia torque causes slip to increase to said peak slip amount.

8. (original) A method of controlling engagement of a clutch which carries torque before, during and after a shifting event in a transmission which is connected to a throttle-controlled engine, the method comprising:

providing a feed-forward input command as a function of an engine operating parameter;

measuring clutch slip;

determining an error between said measured clutch slip and a reference slip profile to provide a feedback input command; and

summing said feed-forward input command and said feedback input command to determine a clutch control command for controlling engagement of the clutch before, during and after the shifting event to allow a desired amount of clutch slip to damp excitation of the transmission.

9. (original) The method of claim 8, wherein said engine operating parameter is selected from the group consisting of throttle position, gas pedal position, and calculated engine torque.

10. (currently amended) The method of claim 9, wherein said reference slip profile includes: a ~~normal~~ driving portion in which a first low slip amount is maintained; a pre-shift portion in which slip is increased from said first low slip amount to a medium slip amount when approaching a vehicle shift speed; a during-shift portion in which slip increases from said medium slip amount to a peak slip amount and then decreases to a second low slip amount; and a post-shift portion in which [[a]] said second low slip amount is maintained.

11. (original) The method of claim 10, wherein said clutch is a range clutch positioned inside the transmission.

12. (original) The method of claim 10, wherein said clutch is an input clutch positioned between the transmission and the engine.

13. (original) The method of claim 10, wherein said clutch is a torque converter clutch positioned between the transmission and the engine.

14. (original) The method of claim 10, wherein said clutch control command controls hydraulic pressure applied within the clutch.

15. (original) The method of claim 14, wherein said hydraulic pressure remains substantially constant in said during-shift portion of the shift profile, and inertia torque causes slip to increase to said peak slip amount.

16. (currently amended) A method of controlling engagement of a clutch which carries torque before, during and after a shifting event in a transmission which is connected to an engine, the method comprising:

providing a feed-forward input command which increases as the engine torque increases, and decreases as the engine torque decreases;

providing a feedback input command which is a function of [[the]] an error value equaling a calculated difference between a measured clutch slip and a reference slip profile, wherein said reference slip profile includes: a ~~normal~~ driving portion in which a first low slip amount is maintained; a pre-shift portion in which slip is increased from said first low slip amount to a medium slip amount when approaching a vehicle shift speed; a during-shift portion in which slip increases from said medium slip amount to a peak slip amount and then decreases to a second low slip amount; and a post-shift portion in which [[a]] said second low slip amount is maintained; and

summing said feed-forward input command and said feedback input command to provide a clutch control command for controlling engagement of the clutch before, during and

after the shifting event to allow a desired amount of clutch slip to damp excitation of the transmission.

17. (original) The method of claim 16, wherein said clutch control command controls hydraulic pressure applied within the clutch.

18. (original) The method of claim 17, wherein said hydraulic pressure remains substantially constant in said during-shift portion of the shift profile, and inertia torque causes slip to increase to said peak slip amount.